



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/781,752

02/20/2004

Yoshiharu Ajiki

118456

3690

25944 7590 05/21/2008

OLIFF & BERRIDGE, PLC  
P.O. BOX 320850  
ALEXANDRIA, VA 22320-4850

EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

05/21/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/781,752	<b>Applicant(s)</b> AJIKI ET AL.	
	<b>Examiner</b> ROBERT HODGE	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-7 and 9-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see Remarks, filed 2/13/08, with respect to the rejection(s) of claim(s) 5, 9, 11 and 12 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 3,737,395.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,106,965 hereinafter Hirano in view of U.S. Patent No. 6,007,933 hereinafter Jones, U.S. Patent No. 3,158,510 hereinafter Gerhardt and U.S. Patent No. 3,737,395 hereinafter Schrage.

Hirano clearly teaches a method of manufacturing a fuel cell comprising forming gas flow paths on substrates, forming current collecting layers, forming reaction layers and forming an electrolyte film, wherein at least the electrocatalyst layer (i.e. reaction layer) is formed by a discharge device (i.e. sputtering and other methods) (column 5, line 1 – column 8, line 61).

Hirano does not teach a “nonmetallic” supporting member disposed in a gas flow path for supporting the current collecting layer.

Jones teaches a fuel cell assembly unit that provides a support member that abuts the flow field plate, said support member comprising a variety of configurations such as woven metal, perforated foil and/or a screen, which will inherently traverse the flow channels (i.e. disposed in a gas flow path because gas must flow through the support member to reach the gas diffusion member (i.e. current collecting layer)) thereby supporting the gas diffusion member (i.e. current collecting layer) and preventing it from being pressed into the flow channels which would in turn restrict the flow of reactant gases (abstract, column 9, lines 9-25). Jones further teaches that different parts of the fuel cell such as the gas diffusion layers can be made with porous carbon material which is known for its conductive and resilient properties, see column 1, line 62 – column 2, line 14, column 3, lines 5-10 and column 7, lines 6-20.

Gerhardt teaches a method for making a rigid porous carbon body suitable as a support or matrix in the formation of fuel cell electrodes (column 1, lines 11-14).

Schrage teaches a method of preparing a porous carbon support for noble metal catalysts, wherein the porous carbon catalyst support has particle diameters of 1-10 microns and less than 100 microns (both ranges overlap the recited range in the instant claims) (column 1, line 55 – column 2, line 66).

Hirano, Jones Gerhardt and Schrage are analogous because they are all from the same problem solving area of supporting catalysts and more particularly noble metal catalysts.

At time of the invention it would have been obvious to one having ordinary skill in the art to include a porous carbon support member between the flow path and the

Art Unit: 1795

current collecting layer of Hirano as taught by Jones and Gerhardt in order to prevent the current collecting layer from being pressed into the flow channels which would in turn restrict the flow of the reactant gases, thus reducing the efficiency and productivity of the fuel cell performance. It further would have been obvious to provide a porous carbon support member having a particle diameter between 1-10 microns and less than 100 microns in Hirano as modified by Jones and Gerhardt as taught by Schrage in order to provide a noble metal catalyst support that has increased surface area that will allow for uniform deposition of the catalyst thus increasing the catalytic selectivity and activity of the catalyst on the support thus improving the overall efficiency of the fuel cell.

Claims 6, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of Jones, Gerhardt and Schrage.

Hirano as modified by Jones, Gerhardt and Schrage discloses the claimed invention except for the specific order of the steps of how the layers are applied to one another. In general, the transposition of process steps or the splitting of one step into two, where the process are substantially identical or equivalent in terms of function, manner and result, was held to be not patentably distinguish the processes. Ex parte Rubin 128 USPQ 159 (PO BdPatApp 1959).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

Art Unit: 1795

from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 5, 9 and 11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,329,432.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application fully encompass the scope of U.S. Patent No. 7,329,432 the only difference is claim 1 of U.S. Patent No. 7,329,432 is further limited by the recitation of the discharge device dispenses liquid droplets.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Art Unit: 1795

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. H./

Examiner, Art Unit 1795

/Jonathan Crepeau/

Primary Examiner, Art Unit 1795